P-4.6 Differentiate between alternating current (AC) and direct current (DC) in electrical circuits

Revised Taxonomy Level 4.1B Differentiate (distinguish) conceptual knowledge
Key Concepts
Alternating current
Direct current

In physical science students "Compare alternating current (AC) and direct current (DC) in terms of the production of electricity and the direction of current flow." (PS-6.10)

It is essential for students to
- Summarize how an AC generator induces a potential difference in a conductor.
- Summarize how a voltaic cell produces electrons of high potential energy.
- Outline the changes in energy through electrical transformers from the power plant to the home appliance.
- Apply electrical formulas to solve problems in electrical transformation.
- Understand the characteristic of frequency of AC current.
- Discuss the benefits and drawbacks of AC and DC current.

Physics for the Technologies course differentiation
- Apply electrical formulas to solve problems in electrical transformation
- Apply the characteristics of frequency and period to AC circuits

Traditional Physics course differentiation
- Explain the production of electricity through electromagnetic induction.

Assessment
As the verb for this indicator is differentiate (distinguish), the major focus of assessment should be for students to distinguish between the relevant and irrelevant parts or important from unimportant parts of presented materials. Because the verb is differentiate rather than compare, students should assess the two types of current in order to determine the factors that are important in determining the differences in AC and DC current. Because the indicator is written as conceptual knowledge, assessments should require that students understand the "interrelationships among the basic elements within a larger structure that enable them to function together." In this case, assessments must show that students understand how AC current differs from DC current in terms of form and function